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Column: Retrospective Study

Title: Accuracy of shoulder joint injections with ultrasound guidance - confirmed by magnetic resonance arthrography -

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Thank you very much for reviewing our manuscript and offering valuable advice. The comments and suggestions of the reviewers were very much appreciated and we consider that we properly responded to the comments. We have listed the comments below, followed by the manner in which we have addressed them. We are sure that our manuscript has improved by your editorial help. I appreciate that our manuscript is accepted for the publication in *World Journal of Orthopedic*.

Reviewer #1's comment:

(1) Although this manuscript is very well written and it seems that the authors have devoted a lot of work to the creation of this very interesting study,

→**Author's response:**

We really appreciate your comment.

Reviewer #1's comment:

(2) there is no control group.

→**Author's response:**

This study was conducted on patients with anterior shoulder instability in a clinical setting. As we wrote in the text, MRA is a very important test to detect intra-articular pathologies. A control group could not be established because of the potential disadvantage to the patient if ultrasound guidance is not used. Therefore, we compared the accuracy rate with that of previous reports about blind injections. We added the comment about its limitation to the discussion as follows;

Line284-288:

“Second, this study has no control group with blind injections. MRA is an essential test for patients with anterior shoulder instability to detect capsular and labral pathologies. A control group could not be established because of the potential disadvantage to the patients if ultrasound guidance is not used.”

Reviewer #1's comment:

(3) It is not clear from the description of the technique the exact location of the insertion of the needle.

→Author's response:

Thank you for your comment. We agree with your suggestion and added the comment in “injection technique” section as follows;

Line179-186:

“In the out-of-plane technique, observing the needle tip at all times during injection is difficult; however, the movement of the needle tip can be detected through the movement of soft tissues. Furthermore, as long as the needle does not deviate from the center of the ultrasound probe, the needle tip theoretically reaches the target in the glenohumeral joint. When the needle tip reaches the joint, the drug can be smoothly injected, and simultaneously, the flow of the fluid can be confirmed in the joint on the ultrasound image (Fig. 3B and 3C).”

Science editor's comment:

(1) The "Author Contributions" section is missing. Please provide the author contributions.

→Author's response:

Thank you for your comment. We added the "Author Contributions" section.

Line31-34:

Author contribution: Kuratani K performed the research, contributed to the analysis and wrote the paper; Tanaka M designed and performed the research and supervised the report; Hanai H supervised the statistical analysis; Hayashida K designed the research and supervised the report

Science editor's comment:

(2) The authors did not provide original pictures. Please provide the original figure documents. Please prepare and arrange the figures using PowerPoint to ensure that all graphs or arrows or text portions can be reprocessed by the editor.

→Author's response:

Thank you for your comment. All figures will be submitted in PowerPoint format.

Science editor's comment:

(3) The "Article Highlights" section is missing. Please add the "Article Highlights" section at the end of the main text.

→Author's response:

Thank you for your comment. Please find the "Article Highlights" section below:

Line303-330:

ARTICLE HIGHLIGHTS

Research background

Intra-articular glenohumeral joint injections are essential procedures in a clinical setting of shoulder surgery. In general, a fluoroscopy-guided shoulder injection has been extensively used.

Research motivation

At our institution, we typically perform ultrasound-guided shoulder injections for MRA. The accuracy of ultrasound guided shoulder injection has not been reported.

Research objectives

To evaluate the accuracy of ultrasound guided shoulder injections with MRA images.

Research methods

We reviewed the shoulder MRA images of patients with anterior shoulder instability and classified the intra-articular condition in three groups and calculated the injection accuracy.

Research results

From the total of 179 injections, 163 (91.0%) were completely administered in the glenohumeral joint. In addition, intra-articular injection with some leakage was detected in 10 shoulders (5.6%).

Research conclusions

The ultrasound-guided shoulder injection was shown to be a very accurate procedure.

Research perspectives

Further, it is necessary to evaluate whether this technique is effective even for inexperienced examiners.

117

118 **Company editor-in-chief' comment:**

119 *Please authors are required to provide standard three-line tables,*

120 →**Author's response:**

121 Thank you for your comment. The table will be submitted in Word in the specified
122 format.